

Transport of snow by the wind: a comparison between observations made in Adélie Land, Antarctica, and simulations made with the Regional Climate Model MAR

Hubert Gallée¹, Alexandre Trouvilliez¹, Cécile Agosta¹, Christophe. Genthon¹, Vincent Favier¹ and Florence Naaim²

1. LGGE.
2. CEMAGREF

Abstract

A preliminary validation of the coupled atmosphere – blowing snow – snow model MAR (Modèle Atmosphérique Régional) is made over Adélie Land, Antarctica, for January 2010. The vertical grid spacing is 2 m up to 20 m above the surface and the horizontal grid spacing is 5 km. The validation is made by comparing the occurrence of blowing snow events and other meteorological parameters at two Automatic Weather Stations (AWS). MAR simulates fairly well the observed wind speed, which is a prerequisite for validating the blowing snow model. Temperature are generally well simulated, despite an overestimation of the diurnal cycle during one week at the coastal AWS, probably because the cloud cover is underestimated there during that time. The simulation of blowing snow occurrence is also in good agreement with the observations. The main result of this study is the availability of usefull complementary tools, both from observations and modeling.